

## CLAIMS

1. A process for preparing a commercially acceptable pharmaceutical grade microcrystalline cellulose comprising:
  - 5 a) repulping a pulp, the pulp having a composition,
  - b) pressing the pulp obtained in a),
  - c) decompacting of the pulp obtained in b),
  - d) feeding the pulp obtained in c) into a pre-heated reactor,
  - e) cooking the pulp in the reactor until the pulp obtains a desired degree of
  - 10 polymerization, said cooking being performed at a temperature, a time, and a pressure which is a function of the desired degree of polymerization and the composition of the pulp, the cooked pulp being hydrolyzed cellulose;
  - f) partially depressurizing the reactor;
  - g) injecting water into the reactor,
  - 15 h) discharging the hydrolyzed cellulose from the reactor,
  - i) filtrating the hydrolyzed cellulose ,
  - j) deaggregating the hydrolyzed cellulose of step i; and
  - k) drying the hydrolyzed cellulose to form microcrystalline cellulose.
- 20 2. The process of claim 1, wherein the step of deaggregating comprises applying a shear force.
3. The process of claim 1, wherein the step of deaggregating is performed with a colloid mill.
- 25 4. The process of claim 1, wherein the step of drying is performed with a spray dryer.
5. The process of claim 1, further comprising, prior to the deaggregating step,
- 30 adding water to the hydrolyzed cellulose of step i to form a solution, neutralizing the solution to a pH of 5.5 or greater

6. The process of claim 5, wherein the step of deaggregating comprises feeding the solution of hydrolyzed cellulose and water into a colloid mill.

7. The process according to claim 1, wherein the repulping step is performed at  
5 a consistency of 2 to 3%.

8. The process according to claims 1, wherein antioxidants are added during the cooking step.

10 9. The process according to claim 1, wherein the cooking temperature varies from 210° to 235°C as a function of the desired degree of polymerization and the composition of the pulp.

10. The process according to claim 1, wherein the cooking time varies between 4  
15 and 25 minutes as a function of the desired degree of polymerization and the composition of the pulp.

11. The process of claim 1, further comprising, after the filtrating step, bleaching the hydrolyzed cellulose.

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12. A process for preparing microcrystalline cellulose comprising:

- a) repulping a pulp, the pulp having a composition,
- b) pressing the pulp obtained in a),
- 25 c) decompacting of the pulp obtained in b),
- d) feeding the pulp obtained in c) into a pre-heated reactor,
- e) cooking the pulp in the reactor until the pulp obtains a desired degree of polymerization, said cooking being performed at a temperature, a time, and a pressure which is a function of the desired degree of polymerization and the
- 30 composition of the pulp, the cooked pulp being hydrolyzed cellulose;
- f) partially depressurizing the reactor;
- g) injecting water into the reactor,

- h) discharging the hydrolyzed cellulose from the reactor,
- i) filtrating the hydrolyzed cellulose,
- j) feeding the hydrolyzed cellulose into a colloid mill; and
- k) drying the hydrolyzed cellulose to form microcrystalline cellulose.

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13. The process according to claim 12, wherein the repulping step is performed at a consistency of 2 to 3%.

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14. The process according to claims 12, wherein antioxidants are added during the cooking step.

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15. The process according to claim 12, wherein the cooking temperature varies from 210° to 235°C as a function of the desired degree of polymerization and the composition of the pulp.

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16. The process according to claim 12, wherein the cooking time varies between 4 and 25 minutes as a function of the desired degree of polymerization and the composition of the pulp.

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17. The process of claim 12, further comprising, after the filtering step, bleaching the hydrolyzed cellulose.

18. The process of claim 1, wherein the bleaching step is performed with a mixture of peroxide, magnesium sulphate and sodium hydroxide.

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19. The process of claim 18, wherein the bleaching step is performed at a temperature between 60° and 120°C.

20. The process of claim 19, wherein the bleaching step is performed with an air pressure of 120 psi.

21. The process of claim 12, wherein the bleaching step is performed with a

mixture of peroxide, magnesium sulphate and sodium hydroxide.

22. The process of claim 21, wherein the bleaching step is performed at a temperature between 60° and 120 °C.

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23. The process of claim 22, wherein the bleaching step is performed with an air pressure of 120 psi.

24. The process of claim 5, wherein the solution is neutralized to a pH of between 5.5 and 7.5.

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25. The process of claim 12, further comprising, prior to the deaggregating step, adding water to the hydrolyzed cellulose of step i to form a solution, neutralizing the solution to a pH of 5.5 or greater.

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26. The process of claim 25, wherein the solution is neutralized to a pH of between 5.5 and 7.5.

27. The process of claim 1, wherein the desired degree of polymerization is a stable degree of polymerization.

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28. The process of claim 1, wherein the desired degree of polymerization is a stable degree of polymerization.

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